

REMARKS

Claims 1-22 remain pending and under current examination. Applicant respectfully requests reconsideration of this application in view of the following remarks.

I. Regarding the Final Office Action

In the Office Action¹, the Examiner maintained the rejection of claims 1-6, 8-15, and 17-21 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,931,943 to Orup ("*Orup*"); the rejection of claims 1-6, 8-15, and 17-21 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,995,991 to Huang et al. ("*Huang*"); and the rejection of claims 1-8, 11, 13, 14, 17, 19, and 20 under nonstatutory double patenting as being unpatentable over claims 1, 2, 4-9, 15-17, and 26-28 of copending U.S. Patent Application No. 10/028,375.

Applicant gratefully acknowledges the Examiner's indication of allowable subject matter in claims 7, 16, and 22 (Office Action mailed September 15, 2004 at p. 7).

Applicant respectfully traverses the Examiner's rejections for the following reasons.

II. Regarding the rejection of claims 1-6, 8-15, and 17-21 under 35 U.S.C. § 103(a) as being unpatentable over *Orup*

Applicant respectfully requests that the Examiner reconsider and withdraw the rejection of claims 1-6, 8-15, and 17-21 because a *prima facie* case of obviousness has not been established with respect to these claims.

¹ The Office Action contains a number of statements reflecting characterizations of the related art and the claims. Regardless of whether any such statement is identified herein, Applicants decline to automatically subscribe to any statement or characterization in the Office Action.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). M.P.E.P. § 2142, 8th Ed., Rev. 2 (May 2004), p. 2100-128.

A *prima facie* case of obviousness has not been established because, among other things, *Orup* does not teach or suggest each and every element of Applicant's claims.

Claim 1 recites a combination including, for example,

a plurality of analysis circuits, one for each of the floating point operands, configured to determine a format of each of the floating point operands based upon floating point status information encoded within each of the floating point operands;

(emphasis added). *Orup* does not teach or suggest at least these elements.

In response to reasoning submitted by Applicant in a previous Response, the Examiner asserts,

in the previous office action ... it is stated "[h]owever, *Orup* does disclose 'FPU core 94 may use the **tag value** ... FPU core 94 can determine which type of special floating point number the operand represents with minimal decoding' (col. 16, first complete paragraph)" (page 3, lines 20-24)

(emphasis in original, Office Action at p. 4). However, this is incorrect. The "tag value" taught by *Orup* is not "encoded within the ... floating point operand," as recited by claim 1.

Rather, *Orup* teaches in col. 15, lines 15-22,

[t]ag field 89 is configured to store a plurality of bits that store a tag value. Each tag value in tag field 89 is associated with a register value in register field 87. In one embodiment, the tag value stored in tag field 89 indicates

whether the floating point register value stored in the associated register field 87 is a normal floating point number or a special floating point number

(emphasis added). That is, *Orup* teaches a separate tag field 89 associated with a register field 87. This is further emphasized in col. 15, lines 50-52, where *Orup* teaches "[t]he memory operand and the tag value associated with the memory operand are conveyed to FPU core 94 via multiplexor 108" (emphasis added).

Neither this portion nor any other portion of *Orup* constitutes a teaching or suggestion of "a plurality of analysis circuits ... configured to determine a format ... based upon floating point status information encoded within each of the floating point operands," as recited by claim 1.

Because *Orup* does not teach or suggest each and every element recited by claim 1 and required by dependent claims 2-6 and 8-10, no *prima facie* case of obviousness has been established with respect to these claims. Accordingly, Applicant respectfully requests the Examiner to reconsider and withdraw the rejection of claims 1-6 and 8-10 under 35 U.S.C. § 103(a) as being unpatentable over *Orup*.

Moreover, in response to reasoning submitted by Applicant in a previous Response, the Examiner asserts "[t]he statement does disclose the equivalent function(s) of 'missing element'" (Office Action at p. 4). The intended meaning of this assertion is not clear. However, regardless of whether any alleged equivalent is identified herein, Applicant declines to automatically subscribe to any equivalent characterization in the Office Action.

In addition, Applicant notes that *Orup* is the only reference relied upon by the Examiner for this particular rejection. The M.P.E.P. sets forth that

The distinction between rejections based on 35 U.S.C. 102 and those based on 35 U.S.C. 103 should be kept in mind. Under the former, the claim is anticipated by the reference. No question of obviousness is present. In other words, for anticipation under 35 U.S.C. 102, the reference must teach every aspect of the claimed invention either explicitly or impliedly. Any feature not directly taught must be inherently present. Whereas, in a rejection based on 35 U.S.C. 103, the reference teachings must somehow be modified in order to meet the claims. The modification must be one which would have been obvious to one of ordinary skill in the art at the time the invention was made. M.P.E.P. § 706.02(IV).

The M.P.E.P. clearly instructs that, for a proper 35 U.S.C. § 103 rejection, "the reference teachings must somehow be modified in order to meet the claims." Id. Therefore, if the Examiner applies a 35 U.S.C. § 103(a) rejection based on *Orup*, he must articulate how *Orup* must be modified to allegedly teach each and every claim element. The Examiner does not explain how or why *Orup* must be modified, other than to make a generalized allegation that "[i]t would have been obvious to ... design the claimed invention according to *Orup*'s teachings, i.e., including the '**tag value**' in **floating point NaN comparator**, because the proposed device is a **floating point NaN comparator** having 'determine a format' as claimed" (emphasis in original, Office Action mailed September 15, 2004 at p. 4).

Moreover, "[i]t is important for an examiner to properly communicate the basis for a rejection so that the issue can be identified early and the applicant can be given a fair opportunity to reply." M.P.E.P. § 706.02(j). The Examiner's rejections are not properly communicated, as there is no explanation of why one of ordinary skill in the art at the time the invention was made would have been motivated to make the proposed modification to meet the elements of at least Applicant's independent claims 1, 11, and 17. The M.P.E.P. further instructs that,

[a]fter indicating that the rejection is under 35 U.S.C. 103, the examiner should set forth in the Office action:

(A) the relevant teachings of the prior art relied upon, preferably with reference to the relevant column or page number(s) and line number(s) where appropriate,

(B) the difference or differences in the claim over the applied reference(s),

(C) the proposed modification of the applied reference(s) necessary to arrive at the claimed subject matter, and

(D) an explanation why one of ordinary skill in the art at the time the invention was made would have been motivated to make the proposed modification

(emphasis added, M.P.E.P. § 706.02(j)). The Examiner has not set forth at least "an explanation why one of ordinary skill in the art at the time the invention was made would have been motivated to make the proposed modification." Id.

For at least these additional reasons, Applicant respectfully requests the Examiner to reconsider and withdraw the rejection of claims 1-6 and 8-10 under 35 U.S.C. § 103(a) as being unpatentable over *Orup*.

Also with respect to dependent claims 2, 4-6, and 8-10, the Examiner has not addressed the elements recited by these claims or provided any motivation, other than to make general conclusions that the recited elements are "well known," "obvious," and "obvious design choice" (Office Action mailed September 15, 2004 at pp. 4-5). As M.P.E.P. § 2144.03(B) makes clear,

there must be some form of evidence in the record to support an assertion of common knowledge ... general conclusions concerning what is "basic knowledge" or "common sense" to one of ordinary skill in the art without specific factual findings and some concrete evidence in the record to support these findings will not support an obviousness rejection. ... The examiner must provide specific factual findings predicated on sound technical and scientific reasoning to support his or her conclusion of common knowledge. The applicant should be presented with the explicit basis on which the examiner regards the matter as subject to official

notice and be allowed to challenge the assertion in the next reply after the Office action in which the common knowledge statement was made

(internal citations omitted). Applicant respectfully submits that the Examiner's general conclusions are not sufficient to support a rejection under 35 U.S.C. § 103(a). Applicant requests that the Examiner provide documentary evidence, supported with sound technical and scientific reasoning, teaching each and every element of Applicant's dependent claims. Because the Examiner has not properly communicated the basis for the rejection, Applicant respectfully requests the Examiner to withdraw the finality of the Office Action mailed May 31, 2005.

For at least these additional reasons, Applicant respectfully requests the Examiner to reconsider and withdraw the rejection of claims 1, 2, 4-6, 8-10 under 35 U.S.C. § 103(a) as being unpatentable over *Orup*.

Independent claims 11 and 17, although of different scope, recite elements similar to elements recited by claim 1. Claims 12-15 and 18-21 depend from independent claims 11 and 17 and therefore include all of the elements recited therein. Accordingly, at least for the reasons discussed above, no *prima facie* case of obviousness has been established with respect to claims 11-15 and 17-21. Applicant therefore respectfully requests the Examiner to reconsider and withdraw the rejection of claims 11-15 and 17-21 under 35 U.S.C. § 103(a) as being unpatentable over *Orup*.

III. Regarding the rejection of claims 1-6, 8-15, and 17-21 under 35 U.S.C. § 103(a) as being unpatentable over *Huang*

Applicant respectfully requests that the Examiner reconsider and withdraw the rejection of claims 1-6, 8-15, and 17-21 because a *prima facie* case of obviousness has

not been established with respect to these claims. A *prima facie* case of obviousness has not been established because, among other things, *Huang* does not teach or suggest each and every element of Applicant's claims.

As noted above, claim 1 recites a combination including, for example,

a plurality of analysis circuits, one for each of the floating point operands, configured to determine a format of each of the floating point operands based upon floating point status information encoded within each of the floating point operands;

(emphasis added). *Huang* does not teach or suggest at least these elements.

The Examiner agrees that *Huang* fails to teach or suggest each and every element of claim 1, stating "Huang et al. do not specifically detail: the claimed 'plurality of analysis circuits ... configured to **determine a format** of each of the floating point operands," as recited by claim 1 (emphasis in original, Office Action mailed September 15, 2004 at p. 5). The Examiner has not provided any reference teaching or suggesting at least this element, as required by M.P.E.P. § 2142 discussed above, and requested in the previous Response of December 15, 2004 at pages 18 and 19. M.P.E.P. § 2144.03(c) states "[i]f applicant adequately traverses the examiner's assertion of official notice, the examiner must provide documentary evidence in the next Office action if the rejection is to be maintained." Applicant respectfully renews the request for documentary evidence teaching each and every element of Applicant's claims.

Because the Examiner has not provided any reference teaching or suggesting at least this element, Applicant respectfully requests that the Examiner withdraw the finality of the Office Action mailed May 31, 2005. Moreover, at least because the Examiner agrees that *Huang* fails to teach or suggest each and every element of

claim 1, Applicant respectfully requests the Examiner to reconsider and withdraw the rejection of claim 1 under 35 U.S.C. § 103(a) as being unpatentable over *Huang*.

Nevertheless, in response to reasoning submitted by Applicant in a previous Response, the Examiner asserts, "in the previous office action ... it is stated '[h]owever, Huang et al do disclose X and Y operand registers each includes a special operand indicator'" (emphasis added, Office Action at p. 4). This assertion is incorrect.

Huang contradicts the Examiner's assertion. *Huang* recites "each portion of the registers 116 and 118 has an operand value storage portion 116-1 and 118-1 and a tag value storage portion 116-2 and 118-2" (emphasis added, *Huang*, col. 6, line 66 through col. 7, line 2). *Huang* thus recites a separate operand value storage portion, 116-1, and a separate tag value storage portion for the x_tag 116-2 (*Huang*, col. 6, line 66 through col. 7, line 2, see also Fig. 4).

Huang further emphasizes a separate tag portion and operand portion, reciting "the operands ... stored in the operand portion 116-1 of the registers 116 are inputted ... [i]n addition, the tag values x_tag, y_tag stored in tag portions 116-2 are inputted directly to the arithmetic section as control signals indicating the operand types of the respective operands X and Y" (emphasis added, *Huang*, col. 7, lines 8-14). That is, *Huang* explicitly contradicts the Examiner's conclusion that "operand registers each includes a special operand indicator" (Office Action at p. 4). *Huang* states that the operand is in an operand portion (e.g., not including the tag unit), and the tag is in a separate portion used to indicate the operand type. Therefore, *Huang* does not teach or suggest at least "a plurality of analysis circuits ... configured to determine a format ...

based upon floating point status information encoded within each of the floating point operands," as recited by claim 1.

In summary, *Huang* does not teach or suggest at least a circuit for "a plurality of analysis circuits ... configured to determine a format ... based upon floating point status information encoded within each of the floating point operands," as recited by claim 1. Therefore, *Huang* fails to teach or suggest each and every element of claim 1.

Because *Huang* does not teach or suggest each and every element recited by claim 1 and required by dependent claims 2-6 and 8-10, no *prima facie* case of obviousness has been established with respect to these claims. Accordingly, Applicant respectfully requests the Examiner to reconsider and withdraw the rejection of claims 1-6 and 8-10 under 35 U.S.C. § 103(a) as being unpatentable over *Huang*.

Moreover, in response to reasoning submitted by Applicant in a previous Response, the Examiner asserts "[t]he statement does disclose the equivalent function(s) of 'missing element'" (Office Action at p. 4). The intended meaning of this statement is not clear. However, regardless of whether any alleged equivalent is identified herein, Applicant declines to automatically subscribe to any equivalent characterization in the Office Action.

In addition, as discussed above, the M.P.E.P. clearly instructs that, for a proper 35 U.S.C. § 103 rejection, "the reference teachings must somehow be modified in order to meet the claims." M.P.E.P. § 706.02(IV). Therefore, if the Examiner applies a 35 U.S.C. § 103(a) rejection based on *Huang*, he must articulate how *Huang* must be modified to allegedly teach each and every claim element. The Examiner does not explain how or why *Huang* must be modified, other than to make a generalized

allegation that "[i]t would have been obvious to ...design the claimed invention according to Huang et al's teachings because the device is an **arithmetic calculation circuit (100)** having special operand indicator in each operand register as claimed" (emphasis in original, Office Action mailed September 15, 2004 at pp. 6-7).

As discussed above, "[i]t is important for an examiner to properly communicate the basis for a rejection so that the issue can be identified early and the applicant can be given a fair opportunity to reply." M.P.E.P. § 706.02(j). The Examiner's rejections are not properly communicated, as there is no explanation of why one of ordinary skill in the art at the time the invention was made would have been motivated to make the proposed modification to meet the elements of at least Applicant's independent claims 1, 11, and 17. The Examiner has not set forth at least "an explanation why one of ordinary skill in the art at the time the invention was made would have been motivated to make the proposed modification." M.P.E.P. § 706.02(j).

For at least these additional reasons, Applicant respectfully requests the Examiner to reconsider and withdraw the rejection of claims 1-6 and 8-10 under 35 U.S.C. § 103(a) as being unpatentable over *Huang*.

Applicant also respectfully requests the Examiner to properly communicate the grounds of rejection for dependent claims 2-6 and 8-10. The Examiner's rejections are not properly communicated, as there is no explanation of why one of ordinary skill in the art at the time the invention was made would have been motivated to make the proposed modification to meet the elements of these claims.

Also with respect to dependent claims 2, 4-6, and 8-10, the Examiner has not addressed the elements recited by these claims, other than to make a general

conclusions that the recited elements are "well known" and "obvious design choice" (Office Action mailed September 15, 2004 at pp. 6-7). As noted above, Applicant respectfully submits that these general conclusions are not sufficient to support a rejection under 35 U.S.C. § 103(a). Applicant requests that the Examiner provide documentary evidence, supported with sound technical and scientific reasoning, teaching each and every element of Applicant's dependent claims. Because the Examiner has not properly communicated the basis for the rejection, Applicant respectfully requests the Examiner to withdraw the finality of the Office Action mailed May 31, 2005.

Independent claims 11 and 17, although of different scope, recite elements similar to elements recited by claim 1. Claims 12-15 and 18-21 depend from independent claims 11 and 17 and therefore include all of the elements recited therein. Accordingly, for at least the reasons discussed above, no *prima facie* case of obviousness has been established with respect to claims 11-15 and 17-21. Applicant therefore respectfully requests the Examiner to reconsider and withdraw the rejection of claims 11-15 and 17-21 under 35 U.S.C. § 103(a) as being unpatentable over *Huang*.

IV. Regarding the nonstatutory double patenting rejection of claims 1-8, 11, 13, 14, 17, 19, and 20 as being unpatentable over claims 1, 2, 4-9, 15-17, and 26-28 of copending U.S. Patent Application No. 10/028,375

Applicant respectfully renews the request that the Examiner hold this rejection in abeyance until allowable subject matter has been indicated (p. 6 of Amendment mailed December 15, 2004). See M.P.E.P. § 804(I)(B).

V. Conclusion

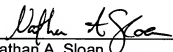
In view of the foregoing remarks, Applicant submits that this claimed invention is neither anticipated nor rendered obvious in view of the prior art references cited against this application. Applicant therefore requests the Examiner's reconsideration and reexamination of the application, and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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Dated: July 29, 2005

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